REMARKS

Receipt of the Office Action of November 20, 2008 is gratefully acknowledged.

Claims 11 – 20 have been examined with the following result: (1) claims 14, 19 and 20 are objected to; (2) claims 11 – 15, 17 and 20 are rejected under 35 USC 102(b) as anticipated by Kroemer et al; (3) claim 16 is rejected under 35 USC 103(a) over kroemer in view of Wikipedia – Polynomial interpolation; and (4) claims 18 and 19 are rejected under 35 USC 103(a) over Kroemer et al in view of Fehrenkamp.

(1) – (2)

Regarding the noted objections, claims 14 and 19 have been cancelled and claim 20 has been amended as suggested by the examiner, thereby obviating the noted objections.

(3)– (4)

Regarding the rejections noted in (3) and (4), these are respectfully traversed.

Kroemer et al. (U.S. Patent No. 5,587,969) discloses, at column 5, line 17 to 46, the following:

The a priori knowledge is always situation-specific. In the case of filling-level measurement, it is assumed that the filling material produce the echo which is the furthest distant and which is not a multiple echo. The knowledge of the position of the fixed targets in the container (e.g. in the form of a learned echo profile) and of the maximum filling and emptying rates can also be used as a priori knowledge. Consideration of the history of the respective profiles of previously-received signals permits plausibility checks concerning the suppression of erroneous measurements and compensation for drift phenomena.

The echo profile of an individual measurement must be assessed by reference to significant criteria (FIG. 3). The investigations carried out have shown that the respective echo can be described sufficiently well by the following features:

- time position of the maximum transit time te
- signal amplitude Ae of the maximum
- form factor Fe (from the 6 dB widths of the maximum).

One recording of the envelope curve is sufficient to simplify the evaluation effort. All features for describing relations between in each case two echoes relative to one another are variables derived therefrom.

Each multiple echo is characterized by the fact that it may be derived from one or more preceding echoes. From these preechoes, which also may themselves be multiple echoes, it is possible to determine expected values for the features of a multiple echo, having regard to the spatial divergence of the sound signal as well as the frequency-dependent propagation attenuation.

- Then in column 7, line 16 to 35 there is disclosed the following;

Since the speed of movement of objects within the pickup range of the sensor is always limited, the echo profile cannot charge discontinuously from one measurement cycle to the other. This knowledge is usually used for the plausibility assessment of individual echoes. Since, on the other hand, the speed of the change in the situation is only infrequently known precisely and echoes may strongly fluctuate due to air movements or temporary shadowings, processes using fixed threshold values have proved to be suitable only to a limited extent.

In the case of the filling-level sensor presented here, a plausibility check takes place with the aid of fuzzy rules. In this case, each individual echo of the current measurement is compared with the echoes of the preceding measurement cycle. A "good" correlation is present when both the transit time difference and the difference of the multiple echo probabilities PMFE are "small". The absolute values for "small",

"moderate" and "large" transit time differences are obtained, for example, from the maximum filling speed and measurement rate.

Based upon this disclosure, we must disagree with the objection of the examiner that Kroemer et al discloses the feature that "the prediction is made for travel-times of the maxima by calculating an instantaneous acceleration and an instantaneous rate of change of the travel-times on the basis of at least three preceding measurements, and the travel-time to be expected is extrapolated on the basis of the acceleration and the rate of change".

Kroemer et al rather discloses that "the speed of the change in the situation is only infrequently known precisely". Kroemer et al do not disclose that the travel-times of the maxima are achieved by calculating an instantaneous acceleration and an instantaneous rate of change of the travel-times used for prediction of echo characteristics of the current measurement.

To make this distinction clear, claim 11 has been amended to include the subject matter of claims 13, 14 and 16. Claim 11 now recites that the travel-times of the maxima are predicted by calculating instantaneous acceleration and an instantaneous rate of change of the travel-times on the basis of at least three preceding measurements, and the travel-time to be expected is extrapolated on the basis of the acceleration and the rate of change. This limitation is not found in the references of record.

In view of the foregoing, reconsideration and re-examination are respectfully requested and claims 11, 17, 18 and 20 are found to be allowed.

Respectfully submitted
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